STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

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Dirk Kempthorne, Governor
C. Stephen Allred, Director

May 20, 2003

Mr. Mark M. Holzmer, Team Leader
Argonne Area Office - West
U.S. Department of Energy
P.O. Box 2528
Idaho Falls, ID 83403-2528

RE: Sampling and Analysis Plan for the Post-Phytoremediation Characterization of ANL-W CERCLA Sites, Operable Unit 9-04.

Dear Mr. Holzmer:

The Idaho Department of Environmental Quality (DEQ) has completed its review of the Sampling and Analysis Plan for the Post-Phytoremediation characterization of ANL-WEST. Based on review of this document DEQ has identified the attached concerns.

If you have any questions or comments concerning this project, please contact me at (208) 373-0450.

Sincerely,

Mark Jeffers
WAG 9, OU 9-04 Manager
Technical Services

MJ/jc

cc: Greg Bass, ANL-W
Matt Wilkening, EPA Region 10
Daryl Koch, WMRD
Kathleen Hain, DOE-ID
File

Attachment

DEQ Comments on Sampling and Analysis Plan for the Post-Phytoremediation Characterization of ANL-W CERCLA Sites, Operable Unit 9-04
May 22, 2003

1) **Section 3.1.6 and 3.1.7, Pages 24 to 30**

DEQ's standard practice is to have a Type I error (α) of 0.05, not 0.10. Making this change results in a sample size of 21 instead of 15.

- The use of Equation 5 (p.29) assumes that spatial variability is not an issue (i.e. contamination measurement are assumed to be uncorrelated). Many sections in the text mention that sampling is taking place from areas considered less contaminated to areas considered more contaminated (likely known from the pre-characterization) (see p.38 bottom). If the contamination is dependent on location, then spatial variability is a factor and a geostatistical sampling approach may be a better way to characterize.

- Related to this issue is whether 21 samples will be adequate to characterize the ANL-09 site (Figure 5) when ANL-W is also going to use 21 samples to characterize the ANL-01A-MCTBD site with dimensions 35' by 110'.

- Figure 5 should be labeled in a similar fashion to Figure 4, with shading and dimensions given.

- Due to the unequal size of the four (4) areas, it does not make intuitive sense to propose an equal number of samples for each of the four sites. This concept needs to be considered and may best be addressed through a conference call to discuss specific concerns.

2) **Section 5.1.2, Page 38**

The discontinuous units can be checked to see if the samples taken in one area are from the same population as the samples taken from another area. This statistical comparison should be conducted (if parametric, F-test and t-test; if non-parametric, Levene test and Kruskal-Wallis) to check the assumption that the discontinuous units can be sampled completely with 21 samples.

3) **Section 9.4, Page 56**

Section 9.4 needs to be expanded. A discussion of how ANL-W is planning to check assumptions is needed. Is the data normal or log normal (Shapiro-Wilk preferred)? What if the data is shown to be nonparametric (i.e. insufficient samples to show a 95% confidence)? How is the assumption of no spatial variability going to be checked (i.e. variogram analysis)?

4) **Tables 8 and 9, Page 52**

DOE must propose a value, which will be given to all non-detect measurement in the determination of the UCL. This value may determine DEQ's acceptance of the detection limits listed in Tables 8 and 9.

General Comment

5) The Sampling and Analysis plan appears to be complete except that data quality indicator (PARCC Parameters) and not addressed/identified. See Appendix D of EPA QA/G5 Page D6, PARA AD2.7.